REMARKS

Claims 1-22 were pending in this application.

Claims 1-22 have been rejected.

Claims 1, 4, 6, 10, 14, 17, and 19 have been amended as shown above.

Claims 1-22 remain pending in this application.

Reconsideration and full allowance of Claims 1-22 are respectfully requested.

I. OBJECTIONS TO DRAWINGS

The Office Action objects to the drawings because of an informality noted in the Office Action. The Applicant has included a proposed drawing correction showing proposed amendments in red ink. The Applicant respectfully submits that the proposed amendments correct the informality noted in the Office Action. The Applicant respectfully requests withdrawal of the objection.

II. OBJECTION TO SPECIFICATION

The Office Action notes the proper content of an abstract. Because the Office Action does not specifically object to the abstract, the Applicant has not amended the abstract.

III. OBJECTIONS TO CLAIMS

The Office Action objects to Claims 1, 4, 6, 10, 14, 17, and 19 because of informalities noted in the Office Action. The Applicant has amended Claims 1, 4, 6, 10, 14, 17, and 19 to

correct the informalities noted in the Office Action. The Applicant respectfully requests

withdrawal of the objections.

IV.   REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects Claims 1-22 under 35 U.S.C. § 103(a) as being unpatentable

over U.S. Patent No. 5,761,469 to Greenley et al. ("*Greenley*") in view of U.S. Patent No.

6,412,061 to Dye ("*Dye*"). The Applicant respectfully traverses this rejection.

In *ex parte* examination of patent applications, the Patent Office bears the burden of

establishing a *prima facie* case of obviousness. MPEP § 2142; *In re Fritch*, 972 F.2d 1260,

1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The initial burden of establishing a *prima*

facie basis to deny patentability to a claimed invention is always upon the Patent Office. MPEP

§ 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re*

Piasecki, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). Only when a *prima*

facie case of obviousness is established does the burden shift to the applicant to produce

evidence of nonobviousness. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d

1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed.

Cir. 1993). If the Patent Office does not produce a *prima facie* case of unpatentability, then

without more the applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24

U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870,

873 (Fed. Cir. 1985).

A *prima facie* case of obviousness is established when the teachings of the prior art itself

suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. MPEP § 2142.

Greenley recites a method and apparatus for improving the performance of pipelined processors. (*Abstract*). The apparatus of *Greenley* includes a data cache, an aligning unit, and a sign extension unit. (*Figure 1*). The aligning unit aligns data retrieved from the cache, and the sign extension unit extends the sign of the data. (*Col. 2, Lines 32-54*). In particular, the aligning unit right justifies the data retrieved from the cache. (*Col. 2, Lines 36-46*).

The Office Action acknowledges that *Greenley* fails to recite bypassing a "shifter circuit." (*Office Action, Page 5, Paragraph 11*). The Office Action then asserts that *Dye* recites bypassing portions of a circuit and that it would be obvious to modify *Greenley* with *Dye*. (*Office Action, Page 5, Paragraph 12*). The Office Action asserts that "the sign extension and alignment units" need not be used when "fetched data occupies the entire register." (*Office Action, Page 5, Paragraph 12*).

Greenley specifically recites that the aligning unit aligns the retrieved data even when a

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double word (64 bits) is retrieved from the cache. (*Col. 2, Lines 43-45*). The aligning unit must examine the retrieved data because the data may not be physically stored consecutively in the cache. (*Col. 2, Lines 19-25*). Based on this, the aligning unit of *Greenley* cannot be skipped when data having 64 bits is retrieved as asserted in the Office Action. Instead, the aligning unit must examine the contents of the retrieved data to ensure that it is properly aligned. Similarly, *Greenley* specifically recites that the sign extension unit operates on retrieved data even when a double word (64 bits) is received from the aligning unit. (*Col. 3, Lines 14-16*). Based on this, the sign extension unit of *Greenley* cannot be skipped when data having 64 bits is retrieved as asserted in the Office Action. As a result, *Greenley* cannot be modified to transfer a "first data value" from a "data cache" directly to a "target register" without processing the first data value in a "shifter circuit" as recited in Claims 1, 10, and 14.

Moreover, *Dye* recites a method for adjusting a processor pipeline and bypassing unnecessary stages. (*Abstract*). In other words, *Dye* simply recites skipping stages of a pipeline. *Dye* contains no mention of bypassing a "shifter circuit" that is separate from an "execution pipeline" as recited in Claims 1, 10, and 14.

For these reasons, there is no motivation to modify *Greenley* so as to bypass the aligning unit and the sign extension unit. In particular, there is no motivation to modify *Greenley* using "bypass circuitry" capable of transferring a "first data value" from a "data cache" directly to a "target register" without processing the first data value in a "shifter circuit" as recited in Claims 1 and 14. Also, there is no motivation to modify *Greenley* so as to transfer a "first data value" from a "data cache" directly to a "target register" without processing the first data value in a

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"shifter circuit" as recited in Claim 10.

In addition, regarding Claim 10, Claim 10 recites transferring a data value to either a "shifter circuit" or a "target register" based on a "determination" that a "pending instruction" is a "load half-word operation," a "load byte operation," or a "load word operation." *Dye* contains no mention of transferring a data value to different locations based on whether a pending instruction is a load half-word operation, a load byte operation, or a load word operation. *Greenley* simply recites that half-words, bytes, and words are all processed by the aligning unit and the sign extension unit. (*Col. 2, Lines 36-46 and 62-65; Col. 3, Lines 1-16*). As a result, *Greenley* and *Dye* both fail to disclose, teach, or suggest transferring a data value to a "shifter circuit" in response to a determination that a pending instruction is a "load half-word operation" or a "load byte operation." *Greenley* and *Dye* also both fail to disclose, teach, or suggest transferring a data value to a "target register" in response to a determination that a pending instruction is a "load word operation."

For these reasons, the Office Action has not established a *prima facie* case of obviousness against Claims 1, 10, and 14 (and their dependent claims). Accordingly, the Applicant respectfully requests withdrawal of the § 103 rejection and full allowance of Claims 1-22.

V.   CONCLUSION

As a result of the foregoing, the Applicant asserts that the remaining claims in the application are in condition for allowance and respectfully requests an early allowance of such claims.

SUMMARY

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@davismunck.com.*

The Commissioner is hereby authorized to charge any additional fees connected with this communication (including any extension of time fees) or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

DAVIS MUNCK, P.C.

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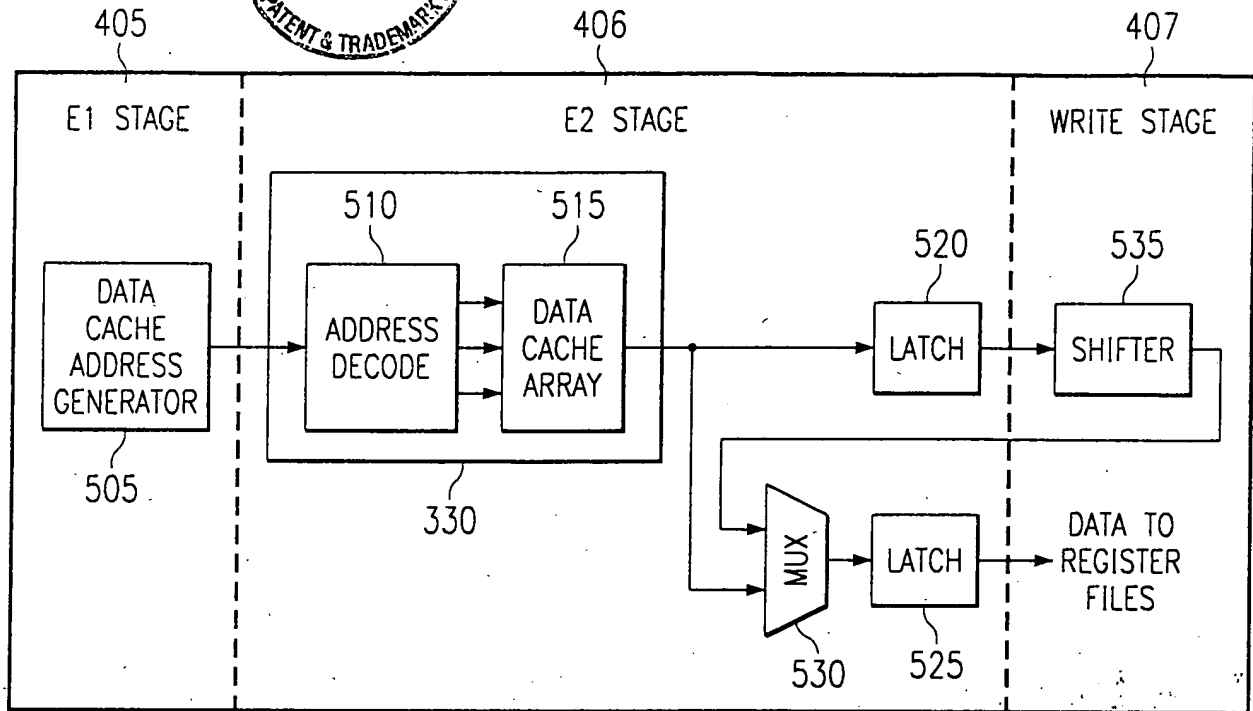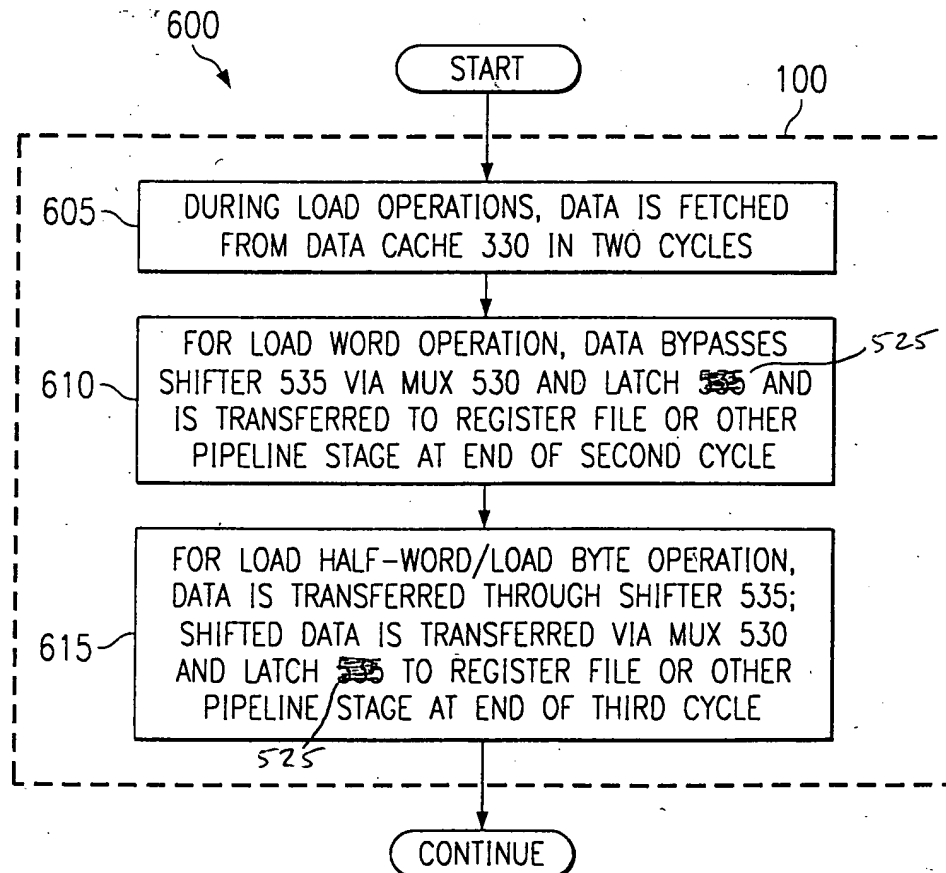Fax: (972) 628-3616
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E1 STAGE	E2 STAGE	WRITE STAGE

FIG. 5

START

100

605 — DURING LOAD OPERATIONS, DATA IS FETCHED FROM DATA CACHE 330 IN TWO CYCLES

610 — FOR LOAD WORD OPERATION, DATA BYPASSES SHIFTER 535 VIA MUX 530 AND LATCH ~~535~~ 525 AND IS TRANSFERRED TO REGISTER FILE OR OTHER PIPELINE STAGE AT END OF SECOND CYCLE

615 — FOR LOAD HALF-WORD/LOAD BYTE OPERATION, DATA IS TRANSFERRED THROUGH SHIFTER 535; SHIFTED DATA IS TRANSFERRED VIA MUX 530 AND LATCH ~~535~~ 525 TO REGISTER FILE OR OTHER PIPELINE STAGE AT END OF THIRD CYCLE

CONTINUE

FIG. 6